

P. ENT COOPERATION TREA

PCT

NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Assistant Commissioner for Patents
 United States Patent and Trademark
 Office
 Box PCT
 Washington, D.C.20231
 ÉTATS-UNIS D'AMÉRIQUE

in its capacity as elected Office

Date of mailing (day/month/year) 17 September 1999 (17.09.99)	
International application No. PCT/GB98/03700	Applicant's or agent's file reference 57.0265 WO PCT
International filing date (day/month/year) 10 December 1998 (10.12.98)	Priority date (day/month/year) 13 December 1997 (13.12.97)
Applicant COVENEY, Peter, Vivien et al	

1. The designated Office is hereby notified of its election made:



in the demand filed with the International Preliminary Examining Authority on:

08 July 1999 (08.07.99)



in a notice effecting later election filed with the International Bureau on:

2. The election ☒ was

was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland	Authorized officer Lazar Joseph Panakal
Facsimile No.: (41-22) 740.14.35	Telephone No.: (41-22) 338.83.38

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INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 570265 WO PCT	FOR FURTHER ACTION see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. PCT/GB 98/03700	International filing date (<i>day/month/year</i>) 10 December 1998	(Earliest) Priority Date (<i>day/month/year</i>) 13 December 1997
Applicant SOFITECH N.V. et al		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 2 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. ☐ Certain claims were found unsearchable (See Box I).

2. ☐ Unity of invention is lacking (See Box II).

3. ☐ The international application contains disclosure of a nucleotide and/or amino acid sequence listing and the international search was carried out on the basis of the sequence listing

☐ filed with the international application.

☐ furnished by the applicant separately from the international application,

☐ but not accompanied by a statement to the effect that it did not include matter going beyond the disclosure in the international application as filed.

☐ transcribed by this Authority.

4. With regard to the title, ☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the abstract,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the drawings to be published with the abstract is:

Figure No. _____ ☐ as suggested by the applicant.

☐ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

☒ None of the figures.

PCTWORLD INTELLECTUAL PROPERTY ORGANIZATION
International Bureau

INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁶ : E21B 43/25, 43/22, 33/138	A1	(11) International Publication Number: WO 99/31353 (43) International Publication Date: 24 June 1999 (24.06.99)
(21) International Application Number: PCT/GB98/03700 (22) International Filing Date: 10 December 1998 (10.12.98) (30) Priority Data: 9726331.3 13 December 1997 (13.12.97) GB (71) Applicant (for all designated States except CA FR US): SOF-ITECH N.V. [BE/BE]; Rue de Stalle 140, B-1180 Brussels (BE). (71) Applicant (for FR only): COMPAGNIE DES SERVICES DOWELL SCHLUMBERGER S.A. [FR/FR]; 50, avenue Jean Jaurès, F-92541 Montrouge (FR). (71) Applicant (for CA only): SHLUMBERGER CANADA LIMITED [CA/CA]; Monenco Place, 24th floor, 801 6th Avenue S.W., Calgary, Alberta T2P 3W2 (CA). (72) Inventors; and (75) Inventors/Applicants (for US only): COVENEY, Peter, Vivien [GB/GB]; 10 Park Avenue, Woodford Green, Essex IG8 0EU (GB). WATKINSON, Michael [GB/GB]; 80 Philip Street, Eccles, Manchester M30 0WE (GB). WHITING, Andrew [GB/GB]; 7 Polford Close, Northwich, Cheshire		(74) Agent: MIRZA, Akram, Karim; Schlumberger Cambridge Research Limited, High Cross, Madingley Road, Cambridge CB3 0EL (GB). (81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG). Published With international search report.
(54) Title: STABILIZING CLAYEY FORMATIONS (57) Abstract A method of stabilizing a clayey geological formation surrounding a hydrocarbon well is described. It comprises the step of treating the formation with a first reactant and a second reactant, characterized in that a reaction of said first and said second reactant is essentially initiated in the presence of clayey material. The reaction can be characterized by substrate intercalation or condensation stabilization with no pH adjustment or stabilization through epoxide ring opening under neutral or acidic conditions or substrate in-situ polymerization or a combination thereof.		

FOR THE PURPOSES OF INFORMATION ONLY

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

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EE	Estonia	LR	Liberia	SG	Singapore		

INTERNATIONAL SEARCH REPORT

International application No.

PCT/GB 98/03700

A. CLASSIFICATION OF SUBJECT MATTER

IPC6: E21B 43/25, E21B 43/22, E21B 33/138
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC6: E21B, C09H

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPODOC, WPI

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5099923 A (C.W. AFTEN ET AL), 31 March 1992 (31.03.92) --	1-5
A	US 4828726 A (R.E. HIMES ET AL), 9 May 1989 (09.05.89) --	1-5
A	EP 0308138 A1 (HALLIBURTON COMPANY), 22 March 1989 (22.03.89) --	1-5
A	US 4693639 A (K.H. HOLLENBEAK ET AL), 15 Sept 1987 (15.09.87) -- -----	1-5

☐ Further documents are listed in the continuation of Box C.☒ See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"I" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance: the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance: the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

9 March 1999

Date of mailing of the international search report

08.04.99

Name and mailing address of the ISA.



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Christer Bäcknert

SA 6235

INTERNATIONAL SEARCH REPORT

Information on patent family members

02/02/99

International application No.

PCT/GB 98/03700

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5099923 A	31/03/92	US 5152906 A	06/10/92
		US 5342530 A	30/08/94
US 4828726 A	09/05/89	AU 2205188 A	16/03/89
		CA 1317755 A	18/05/93
		DE 3866650 A	16/01/92
		EP 0308138 A,B	22/03/89
		NO 176056 B,C	17/10/94
EP 0308138 A1	22/03/89	AU 2205188 A	16/03/89
		CA 1317755 A	18/05/93
		DE 3866650 A	16/01/92
		NO 176056 B,C	17/10/94
		US 4828726 A	09/05/89
US 4693639 A	15/09/87	CA 1275345 A	16/10/90
		EP 0251558 A	07/01/88

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

TENT COOPERATION TREATY

PCT

REC'D 04 FEB 2000

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

I. Basis of the report

1. This report has been drawn on the basis of *(substitute response to an invitation under Article 14 are referred the report since they do not contain amendments.)*:

Description, pages:

1-12,15-19 as originally filed

Claims, No.:

1-5 as originally filed

Drawings, sheets:

1/2-2/2 as originally filed

2. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
☐ the claims, Nos.:
☐ the drawings, sheets:



3. ☐ This report has been established as if (some of) it considered to go beyond the disclosure as filed (F

4. Additional observations, if necessary:

Applicant's or agent's file reference 57.0265 WO PCT		FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/GB98/03700	International filing date (day/month/year) 10/12/1998	Priority date (day/month/year) 13/12/1997	
International Patent Classification (IPC) or national classification and IPC E21B43/25			
Applicant SOFITECH N.V. et al.			

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 4 sheets, including this cover sheet.
- ☐ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).
- These annexes consist of a total of sheets.

3. This report contains indications relating to the following items:
- I ☒ Basis of the report
 - II ☐ Priority
 - III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
 - IV ☐ Lack of unity of invention
 - V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
 - VI ☐ Certain documents cited
 - VII ☐ Certain defects in the international application
 - VIII ☐ Certain observations on the international application

Date of submission of the demand 08/07/1999	Date of completion of this report 10/12/99
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized officer Gosselin, D Telephone No. +49 89 2399 8400 

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/GB98/03700

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	1-5
	No:	Claims	
Inventive step (IS)	Yes:	Claims	3,4
	No:	Claims	1,2,5
Industrial applicability (IA)	Yes:	Claims	1-5
	No:	Claims	

2. Citations and explanations

see separate sheet

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/GB98/03700

Re Item V

Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. The subject-matter of claims 1 to 5 is apparently novel in view of the prior art cited in the search report. None of the cited documents is concerned with a method for stabilizing a clayey formation surrounding a hydrocarbon well through a process of in-situ polymerization.
2. In view of the application data, almost all the compositions seem to be capable of strengthening and stabilizing clay in the formation. Therefore, claims 1 to 5 seem to contain subject-matter, which could involve an inventive step.

However, in view of page 9, line 8-12, it appears that substrate in situ polymerization, which is one embodiment according to dependent claim 2, might not be suitable to stabilize the clayey formation.

Since, claims 1, 2 and 5 seem to contain possibilities, which are not solution of the technical problem of the application, these claims in their present form do not involve an inventive step in terms of Article 33(1) and (3) PCT.



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